

# WES Review 2018

***WES Methodology: Criteria for  
the selection of hazardous  
chemicals to be considered for addition  
to or removal from the workplace  
exposure standards list***

*Australian workplace exposure standards  
and advisory notations*

Safe Work Australia (2018)



**safe work australia**

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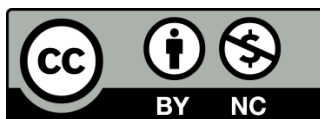
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# Criteria for the selection of hazardous chemicals to be considered for addition to or removal from the Workplace Exposure Standards list

This document is the third part of the methodology for a regulatory framework for recommending and reviewing health-based workplace exposure standards and notations<sup>1</sup>.

## Aim

The overarching aim for the review of workplace exposure standards for hazardous chemicals is to develop health-based recommendations for workplace exposure standards and notations based on evaluation of available data.

The document, *Workplace exposure standards for airborne contaminants* (2013; the WES list), contains a list of exposure standards that are mandatory under the model Work Health and Safety (WHS) laws. To comply with the model WHS Regulations, persons conducting a business or undertaking (PCBUs) must ensure that no person is exposed to airborne concentrations of a chemical above the exposure standard at the workplace.

It is necessary that the chemicals on this list are relevant to workplaces in Australia. This part of the methodology aims to identify hazardous chemicals that are appropriate for the WES list.

## Approach

The first part of the methodology outlines the approach to use trusted domestic and international data sources to inform recommendations for workplace exposure standards<sup>2</sup>.

The second part of the methodology outlines how the data available from these sources can be used to determine workplace exposure standards and notations for the chemicals listed<sup>3</sup>.

The third methodology outlines an approach to recommend updates to the composition of the WES list, including to make recommendations on and an approach to determine:

- which chemicals should be considered to be added to the WES list, and
- which chemicals should be considered for removal from the WES list

## Outcome

A key result of the development of an overarching methodology for workplace exposure standards is that the chemicals and values will be reviewed on a regular basis<sup>4</sup>. From an efficiency perspective, it is also logical that only chemicals that are relevant to workplaces in Australia be on the WES list. Therefore, as part of the scheduled review, the WES list will be examined and relevant additional chemicals will be recommended to be added to the list and chemicals no longer relevant will be recommended for removal.

The outcome of this part of the methodology is two lists:

- chemicals that are recommended to be considered to be added to the WES list, and
- chemicals that are recommended to be considered for removal from the WES list.

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<sup>1</sup> Notations include those for classification of carcinogenicity and sensitisation and potential for skin absorption.

<sup>2</sup> [WES Methodology: Criteria for the selection of sources for workplace exposure standards, notations and supporting data](#)

<sup>3</sup> [WES Review 2018: WES Methodology: Recommending health-based workplace exposure standards and notations](#)

<sup>4</sup> The timing for review is yet to be determined. However, the model WHS laws must be reviewed every five years and it is expected that this will be the maximum timeframe. This will be covered in a separate methodology document (still in draft form).

These lists will be supported by criteria to inform the justification for why a chemical has been recommended for addition to or removal from the WES list.

## Criteria for chemicals to be considered to be added to the list

The criteria for adding a chemical to the list must include:

- (a) the availability of toxicological and epidemiological data for the chemical, and
- (b) evidence of use or generation in Australia

### (a) Availability of toxicological and epidemiological data

Reliance on a risk assessment from only one primary source raises concerns about the robustness of the outcomes without additionally performing a more comprehensive, independent review of relevant toxicological and epidemiological data.

As a comprehensive review of the data is considered out of scope for the overarching methodology<sup>5</sup>, only chemicals for which data are available from two or more trusted primary sources identified in [WES Methodology: Criteria for the selection of sources for workplace exposure standards](#) will be considered for recommending adding a chemical to the WES list.

However, on occasion, a workplace exposure standard for a chemical not currently in the WES list will be recommended by the Australian Institute of Occupational Hygienists Inc. (AIOH<sup>6</sup>), or the National Industrial Chemicals Notification and Assessment Scheme (NICNAS<sup>7</sup>).

Assessments performed by AIOH and NICNAS are relevant to chemical use in Australia. Therefore, any assessments and recommendations made by AIOH or NICNAS will be taken into account when considering chemicals that should be added to the WES list.

### (b) Evidence of use in Australia

As noted above, to ensure the WES list is appropriate for Australian workplace use patterns, for a chemical to be considered for addition to the WES list there must be evidence of its use in Australia.

Australia has two primary databases to inform whether a chemical is used in Australian workplaces:

- Industrial chemicals that are used in Australia are listed in the Australian Inventory of Chemical Substances (AICS) database maintained by NICNAS, and
- Active constituents approved for use in registered agricultural and veterinary chemical products are listed in the Australian Pesticide and Veterinary Medicines Authority (APVMA) Public Chemical Registration Information System (PUBCRIS) database.

It is unlikely that Australian workers will be exposed to chemicals that are not listed in either the AICS or PUBCRIS databases.

## Criteria for considering the addition of a chemical to the WES list

A chemical will generally be considered to be added to the WES list if it meets one of the following three criteria:

- an exposure standard is available from two or more primary agencies and there is evidence that the chemical is used in Australia (i.e. listed on AICS or PUBCRIS),

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<sup>5</sup> A comprehensive review of the available literature and data may occur as a recommendation of the second part of the methodology: evaluation of workplace exposure standards. However, a comprehensive review is not considered part of the overarching methodology to review workplace exposure standards (see [WES Methodology: Recommending health-based workplace exposure standards and notations](#)).

<sup>6</sup> The AIOH is the association that represents professional occupational hygienists in Australia. The objective of the AIOH is to help ensure that workplace health hazards are eliminated or controlled such that worker exposures are minimised. The AIOH has an Exposure Standards Committee that performs assessments of workplace contaminants and recommends or proposes new workplace exposure standards.

<sup>7</sup> NICNAS performs assessments of human health and environmental impacts of industrial chemicals used in Australia. Based on the human health risk assessment, NICNAS will occasionally recommend changes to the workplace exposure standard for a given chemical.

- an exposure standard is available from two or more primary agencies and a significant need to have an exposure standard for a particular chemical was evident during a public consultation process, or
- an exposure standard is available from one primary agency and an exposure standard has been investigated and recommended by AIOH or NICNAS.

## Criteria for chemicals to be considered for removal from the list

Chemicals considered for removal from the current WES list of workplace exposure standards can be divided into two groups:

- chemicals for which a workplace exposure standard was recommended for withdrawal during the process to determine a workplace exposure standard, and
- chemicals without evidence of use or generation in workplaces in Australia, or if there is the potential for legacy exposure.

### (a) Chemicals with a recommendation for withdrawal of the exposure standard

As part of the methodology to evaluate an exposure standard, an outcome may be a recommendation for withdrawal due to insufficient or inadequate data to support the exposure standard. These chemicals (and their associated standard) will be included on the 'consider for withdrawal' list.

Another outcome of this methodology may be that the airborne concentration of a chemical is an unreliable measure of exposure or health hazards<sup>8</sup>. If this becomes apparent, the chemical (and its associated standard) will be included on the 'consider for withdrawal' list.

Some chemicals may be assessed as or recommended to belong to a chemical class during the evaluation of the individual exposure standard values as the main toxicological effect is associated with a common component of the chemical. All members of the chemical class that were assessed as a group will be retained on the WES list, even if they fall into one of the two groups above.

### (b) Chemicals without evidence of use in workplaces in Australia

The AICS and PUBCRIS databases will be examined to determine if a chemical is used in Australia. A chemical that is not listed in the AICS database or a product containing the chemical is not listed in the PUBCRIS database indicates the chemical may not be used in Australia. However, there may be exceptions and these are covered in more detail below.

## Criteria for considering removal of a chemical from the WES list

The decision flowchart for the process of recommending a chemical to be removed from the WES list is shown in Figure 1 and reproduced in text below. The criteria below can be informed by the documentation published by the trusted primary sources.

There will be a systematic process to identify chemicals that should be considered for removal from the WES list:

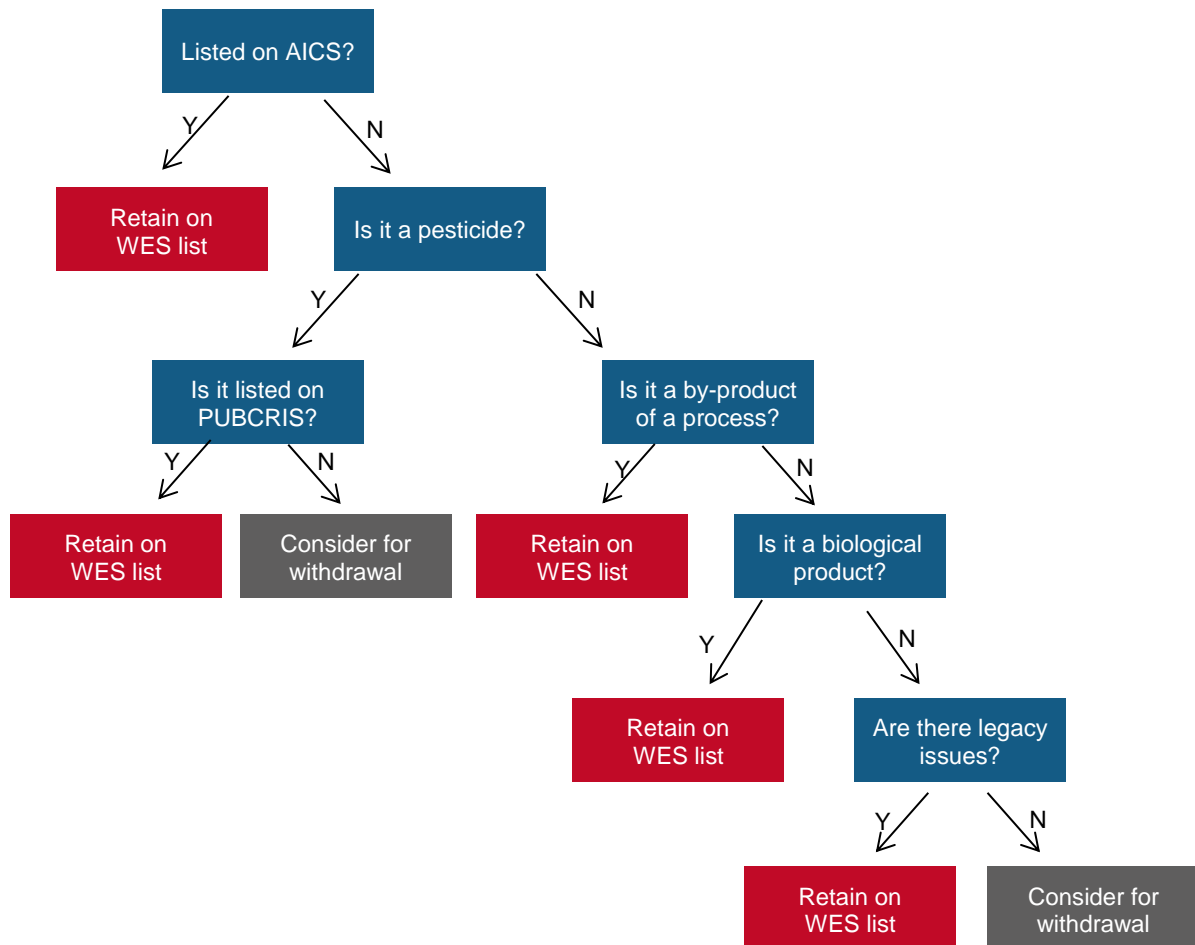
1. Chemicals that are listed in the AICS database, a database of chemicals available for industrial use in Australia, will be retained in the WES list.  
The remaining chemicals will move to the next step.
2. If the documentation for a chemical indicates it is a pesticide but no registered products are listed in PUBCRIS, the chemical will be considered for removal from the WES list (step 4).  
If registered products are contained in the PUBCRIS database, the chemical will be retained on the WES list.  
Chemicals that are not pesticides will move to the next step.
3. If the documentation for a chemical indicates it is a by-product of a workplace process or is a generated workplace chemical, it will be retained on the WES list.  
The remaining chemicals will move to the next step.
4. If the documentation for a chemical indicates it is a biological product, it will be retained on the WES list.

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<sup>8</sup> An example of such a compound is an asphyxiant, where airborne concentrations of oxygen are a more reliable measure of potential health effects than airborne concentrations of the chemical.

The remaining chemicals will be combined with the list of pesticides that have no apparent use in Australia (from step 2) and these chemicals will move to the next step.

5. If the documentation indicates a chemical has no current workplace use or its use has been banned under specific legislation<sup>9</sup>, but worker exposure may occur due to contaminated materials or previously-exposed sites (legacy exposure), it will be retained on the WES list.



**Figure 1** Flowchart to decide which chemicals should be considered for removal from the WES list

The combined list of chemicals recommended for removal from the WES list will be inspected by an internal Agency panel to assess whether there are justifiable reasons for retaining any of the chemicals on the list. External consultation will then be sought to confirm the set of chemicals that should be removed from the WES list.

Any chemical and associated workplace exposure standards removed from the WES list will be retained in a repository maintained by Safe Work Australia. The workplace exposure standards for these chemicals will not be actively maintained or updated as part of the scheduled reviews.

## Next steps

These criteria will be applied to the chemicals listed in:

- the WES list, and
- primary source documentation.

<sup>9</sup> For example under environmental laws.